

Amendments to the Specification

Under the Title, Replace the Section Heading as follows:

PRIOR ART BACKGROUND OF THE INVENTION

Amend Paragraph [0001] as follows:

[0001] The invention relates to a gear drive unit with an electronic interface in accordance with the species of the independent claims.

In Between Paragraphs [0004] and [0005] Replace the Section Heading as follows:

ADVANTAGES OF THE INVENTION SUMMARY OF THE INVENTION

Amend Paragraph [0005] as follows:

[0005] The gear drive unit in accordance with the invention with the features of the independent claims has the advantage that with the embodiment of an electronic interface on the housing of a drive unit, which has an opening both radially as well as axially to the armature shaft, completely different plug-in modules of any shape and size can be combined with the drive unit. Due to the embodiment of at least one sealing surface and guides on the inside walls of the electronic interface, the various plug-in modules can be sealed with the correspondingly formed-on seals in a watertight manner. As a result, tool costs for manufacturing the housing of the drive unit can be reduced to a great degree since it can be combined with many different plug-in modules without substantial changes having to be made to the drive housing. For example, this type of electronic interface offers a solid and impervious connecting possibility with power window electronics, door controller electronics, sensor adapters or two-pin plugs.

Amend Paragraph [0006] as follows:

[0006] Advantageous developments of the gear drive unit in accordance with the invention are possible due to the features listed in the sub-claims. If the sealing surfaces on the electronic interface are embodied so that they radially seal the plug-in modules together with its seals, then the sealing effect is independent of the application force in the insertion

direction. This is advantageous because more degrees of freedom are available for positioning the plug-in module exactly and the locking means for fastening the plug-in module are not stressed excessively.

Amend Paragraph [00014] as follows:

[00014] The plug-in module, ~~in accordance with the invention as defined in Claim 12~~ for use together with a gear drive unit in accordance with the invention has the advantage that the different seals of the various plug-in modules, each with a corresponding sealing surface of the electronic interface, reliably seal the entire housing imperviously. In doing so, the seal, made e.g., of a thermoplastic elastomer, is respectively arranged so that its sealing lip forms a radial seal together with the respective sealing surface. Because of the electronic interface in accordance with the invention, various plug-in modules with different shapes can be reliably connected with the drive unit in a simple manner. In this connection, it is especially favorable to arrange the electronic plug radially away from the armature shaft when using large plug-in modules, which extend e.g., over the entire length of the pole pot.

In Between Paragraphs [00019] and [00020], Replace the Section Heading as follows:

~~DRAWINGS~~ BRIEF DESCRIPTION OF THE DRAWINGS

In Between Paragraphs [00028] and [00029], Replace the Section Heading as follows:

~~DESCRIPTION OF THE EXEMPLARY EMBODIMENTS~~ DETAILED DESCRIPTION

Amend Paragraph [00029] as follows:

[00029] Figure 1 shows a gear drive unit 10, in particular for power windows, which has an electric motor 12, which is accommodated in a pole housing 14, from which an armature shaft 16 projects into a gear housing 18. A worm 20 is arranged on the armature shaft 16, which meshes with a driven gear 22 and transmits the force to the power window mechanism (not shown) via a driving pinion 26 positioned on its axis 24. In order to detect the position of an adjustment part, a ring magnet 28, which cooperates with Hall sensors 30 that are arranged on a printed circuit board 32 of a plug-in module 34, 82, 110, is arranged on the armature shaft 16 in the area of the gear housing 18. To insert a plug-in module 34, the gear drive unit 10 has an electronic interface 36, which is embodied by means of injection molding process to be a single part with a housing part 16, 18 — in this case with the gear housing 18. The electronic interface 36 has walls 38 that are spaced apart, which extend away from the armature shaft 16. The two walls 38 practically form a housing 40 of the electronic interface 36 with an opening 42 radial to the armature shaft 16 and an opening 44 axial to the armature shaft 16, wherein the openings 42 and 44 are connected to one another and to a certain degree form a common opening with two opening directions (radial and axial). The two walls 38, which run approximately parallel to one another and to the armature shaft 16, are connected with one another by another wall 39, which runs approx. perpendicular to the walls 38 and to the armature shaft 16. The housing part 18 has a recess 46 towards the armature shaft 16, into which a printed circuit board 32 can be introduced either radially or tangentially to the armature shaft 16. If the recess 46 is embodied as an open break-through towards the motor compartment, it is necessary when inserting a plug-in module 34 for the entire motor and gear compartment to also be sealed in a watertight manner in order to also be able to use the drive in a moist area. For this purpose, at least two different sealing surfaces (a first one 50 and a second one 48) are embodied on the electronic interface ~~34~~36, each of which can cooperate with different sealing arrangements 60, 88 of various plug-in modules 34, 82, 94, 110. The second sealing surface 48 is formed by the circumferential side wall 52 of the recess 46. As a result, the surface to be sealed corresponds with the cross-section of the recess 46 and lies completely in a plane at a fixed distance to the axis of the armature shaft 16.

Amend Paragraph [00035] as follows:

[00035] Figure 5 shows the electronics for power windows 94 as another plug-in module 34 with a printed circuit board 32 to insert into the recess 46 in a gear drive unit 10 in accordance with Figure 1. The printed circuit board 32 is inserted in this case tangentially to the armature shaft 16 so that speed sensors 30 are arranged directly adjacent to the magnet 28 on the armature shaft 16. The electronic module 94 features outside walls 96, 97 arranged at an angle to one another, which are also connected to each other via a L-shaped frame element 98. Extending on one of the outside walls 96 in the exterior area axial to the armature shaft is an electronic plug 84, which is connected to the printed circuit board 32 with plug pins 100, e.g., by means of press-in technology. The L-shaped arrangement of the frame element 98 makes possible free access for mounting the printed circuit board 32 as well as a reliable accommodation for the printed circuit board 32 in the electronic module 94. In this case, the printed circuit board 32 extends over an axial area 102, which essentially corresponds to the axial extension of the outside wall 97 perpendicular to the insertion direction 55. In this case, the axial extension of the recess 46 is adapted to the axial extension 102 of the printed circuit board 32 so that the printed circuit board can also be used for arranging larger electronic components 104. A radial seal 60 for sealing is arranged on the electronic module 94 in such a way that in an inserted state it cooperates with the first sealing surface 50. In this case, the guide rail 66 presses the sealing section 106 facing the armature shaft 16 against the radial projection 58. The sealing sections 107 along the insertion direction 55 are pressed via the guides 64 against the inside surface 56 of the walls 38. The sealing area 108, which is arranged circumferentially on the outside wall 97 perpendicular to the insertion direction 55, is also pressed on the sealing surface 50 on the inside wall 56 of walls 38 and 39. In this case, the individual sealing areas 106, 107, 108 lie in different planes, which are arranged at least partially at an angle to one other. Because of this progression of the seal, both adjacent openings 42 and 44 are sealed tightly and the entire installation space of the electronic interface 36 is gained as additional motor compartment space. Again formed on the outside wall 97 are counter locking means 74, which engage in locking means 68 of the electronic interface ~~34~~36 and mechanically fasten the electronic module 94 together with the guides 64. Corresponding to the shaping of the first sealing surface 50 in the area of the radial projection 58, the sealing section 106 is formed in such a way even in the case of the electronic module 94 that the optional arrangement of a motor contact plug 80, which is embodied as a single piece with a brush holder 62, is not impeded.